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| 10/688,493 | 10/17/2003 | Eric H. Hedlund | 20-LC-1974/624226-382 | 2194 |
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| BEUSSE BROWNLEE WOLTER MORA & MAIRE, P. A. | | | BARAN, MARY C | |
| 390 NORTH ORANGE AVENUE | | | ART UNIT | |
| SUITE 2500 | | | PAPER NUMBER | |
| ORLANDO, FL 32801 | | | 2857 | |

DATE MAILED: 07/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/688,493

Applicant(s)

HEDLUND ET AL.

Examiner

Mary Kate B Baran

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-26, 28-34, 36-38, 41-43 and 45-55 is/are rejected.
- 7) ☒ Claim(s) 27, 35, 39, 40 and 44 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/1/04; 2/23/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 21, 26 and 38 are objected to because of the following informalities:

(a) Claim 21 page 2 line 3, "tool" should be – tools –.

(b) Claim 26 page 3 line 3, "one of more" should be – one or more –.

(c) Claim 38 page 5 line 11, "back period" should be – back period. –.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-25, 28, 29, 33, 36-38, 41-43 and 45-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom et al. (U.S. Patent No. 6,115,653) (hereinafter Bergstrom) in view of Jarrett (U.S. Patent No. 6,345,257).

Referring to claim 20, Bergstrom teaches a method for analyzing performance data, comprising: receiving sets of performance data (see Bergstrom, column 5 lines 1-4); storing the sets of performance data (see Bergstrom, column 5 lines 5-11); assigning a priority to each set of performance data for the order in which the sets of performance data are to be analyzed (see Bergstrom, column 7 lines 17-24); analyzing the sets of performance data, according to the assigned priorities, by a plurality of data analysis

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tools within a respective analysis capability limit of each of the tools (see Bergstrom, column 7 lines 59-65); and creating a service recommendation based on the step of analyzing the sets of performance data (see Bergstrom, column 1 lines 50-56).

Bergstrom does not teach determining the need for remedial action to one or more of the plurality of locomotives (see Jarrett, column 6 lines 18-26).

Jarrett teaches determining the need for remedial action to one or more of the plurality of locomotives (see Jarrett, column 6 lines 18-26).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bergstrom to include the teachings of Jarrett because determining the need for remedial action of a locomotive would have allowed the skilled artisan to report product defects to maintenance personnel and track product repairs (see Jarrett, column 1 lines 7-12).

Referring to claim 21, Bergstrom teaches that one or more of the plurality of data analysis tools simultaneously analyze a set of performance data, and wherein the analysis capability limit comprises a limit on a number of data analysis tools that can simultaneously analyze the performance data (see Bergstrom, column 7 line 59 – column 8 line 17).

Referring to claim 22, Bergstrom teaches that the analysis capability limit comprises a limit on the number of sets of performance data that one of the plurality of data analysis tools can analyze (see Bergstrom, column 10 lines 1-9).

Referring to claim 23, Bergstrom teaches that the recommendation is selected from among, a repair recommendation, a maintenance recommendation and a recommendation requesting collection of additional sets of performance data from the locomotive (see Bergstrom, column 14 lines 15-23).

Referring to claim 24, Bergstrom teaches that the step of analyzing further comprises determining an order according to which each one of the plurality of data analysis tools analyze a set of performance data (see Bergstrom, column 7 line 59 – column 8 line 17).

Referring to claim 25, Bergstrom teaches all the features of the claimed invention except that the recommendation further comprises results from the step of analyzing and requests review of the analyzed performance data by an expert in the operation and repair of locomotives.

Jarrett teaches that the recommendation further comprises results from the step of analyzing and requests review of the analyzed performance data by an expert in the operation and repair of locomotives (see Jarrett, column 6 lines 37-45).

It would have been obvious at the time the invention was made to of ordinary skill in the art to modify Bergstrom and Jarrett to include the teachings of Bryan because sending the defect to an expert would have allowed the skilled artisan to repair the defect quickly and efficiently.

Referring to claim 28, Bergstrom teaches that the step of prioritizing the sets of performance data further comprises prioritizing the sets of performance data according to high priority download cases and normal priority download cases (see Bergstrom, column 9 line 56 – column 10 line 3).

Referring to claim 29, Bergstrom teaches that the step of analyzing further comprises analyzing the high priority download cases prior to analyzing the normal priority downloaded cases (see Bergstrom, column 7 lines 39-51).

Referring to claim 33, Bergstrom teaches that selecting, in response to the sets of performance data, one or more data analysis tools from the plurality of data analysis tools for analyzing the performance data according to the step of analyzing (see Bergstrom, column 5 lines 49-58).

Referring to claim 36, Bergstrom teaches that the sets of performance data comprise operational parametric data associated with locomotive operation and fault data indicating a possible fault condition on the locomotive, wherein the operational parametric data is available for receiving on a periodic schedule, and wherein the fault data is available for receiving after occurrence of a fault on a locomotive (see Bergstrom, column 12 lines 10-22).

Referring to claim 37, Bergstrom teaches that the analysis tools comprise a case-based reasoning tool, a trend anomaly tool, a Bayesian belief network tool, a fault classification tool and an anomaly detection tool (see Bergstrom, column 6 lines 3-7).

Referring to claim 38, Bergstrom teaches a method for generating a service recommendation, comprising: receiving sets of recent locomotive performance data for the order in which the sets of performance data at a remote diagnostic site (see Bergstrom, column 5 lines 1-4); assigning a priority to each set of recent performance data for the order in which the sets of performance data are to be analyzed (see Bergstrom, column 7 lines 17-24); analyzing the sets of recent performance data, according to the assigned priorities, and sets of performance data from a look back period, by one or more of a plurality of data analysis tools (see Bergstrom, column 7 lines 59-65); and generating a service recommendation for the locomotive in response to the step of analyzing the sets of recent performance data and the sets of performance from the look back period (see Bergstrom, column 1 lines 50-56). Bergstrom does not teach a method for generating a service recommendation for a locomotive.

Jarrett teaches a method for generating a service recommendation for a locomotive (see Jarrett, column 6 lines 37-45).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bergstrom to include the teachings of Jarrett because generating a service recommendation for a locomotive would have allowed the skilled

artisan to report product defects to maintenance personnel and track product repairs (see Jarrett, column 1 lines 7-12).

Referring to claim 41, Bergstrom teaches all the features of the claimed invention except that the look back period extends back to a time when a prior service recommendation was generated for the locomotive.

Jarrett teaches that the look back period extends back to a time when a prior service recommendation was generated for the locomotive (see Jarrett, column 6 lines 24-26).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bergstrom to include the teachings of Jarrett because extending the look back period would have allowed the skilled artisan to examine all defects recorded.

Referring to claim 42, Bergstrom teaches all the features of the claimed invention except modifying a duration of the look back period.

Jarrett teaches modifying a duration of the look back period (see Jarrett, column 9 lines 51-64 and Table 2).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bergstrom to include the teachings of Jarrett because modifying the look back period would have allowed the skilled artisan to examine all recorded defects.

Referring to claim 43, Bergstrom teaches all the features of the claimed invention except generating problem cases comprising service recommendations according to the step of generating a service recommendation; and selecting a look back period to eliminate a problem case comprising a service recommendation that has been implemented by a locomotive operator.

Jarrett teaches generating problem cases comprising service recommendations according to the step of generating a service recommendation (see Jarrett, column 6 lines 18-26); and selecting a look back period to eliminate a problem case comprising a service recommendation that has been implemented by a locomotive operator (see Jarrett, column 6 lines 37-45).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bergstrom to include the teachings of Jarrett because selecting a look back period would have allowed the skilled artisan to examine all selected recorded defects.

Referring to claim 45, Bergstrom teaches all the features of the claimed invention except providing the problem cases to a locomotive operator, wherein one or more of the problem cases are closed by the locomotive operator by implementing one or more of the service recommendations and others of the problem cases remain open.

Jarrett teaches providing the problem cases to a locomotive operator, wherein one or more of the problem cases are closed by the locomotive operator by

implementing one or more of the service recommendations and others of the problem cases remain open (see Jarrett, column 8 lines 24-30).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bergstrom to include the teachings of Jarrett because closing out defects would have allowed the skilled artisan to determine which defects had been repaired (see Jarrett, column 8 lines 24-30).

Referring to claim 46, Bergstrom teaches accumulating open problem cases (see Bergstrom, column 7 lines 17-24).

Referring to claim 47, Bergstrom teaches all the features of the claimed invention except a step of detecting a repetitive problem case as a problem case comprising one or more of service recommendations, anomalous operating conditions, detected faults and requests for additional performance data present in a previously generated problem case.

Jarrett teaches a step of detecting a repetitive problem case as a problem case comprising one or more of service recommendations, anomalous operating conditions, detected faults and requests for additional performance data present in a previously generated problem case (see Jarrett, column 6 lines 18-26).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bergstrom to include the teachings of Jarrett because detecting

repetitive defects would have allowed the skilled artisan to implement precautionary measures.

Referring to claim 48, Bergstrom teaches that the service recommendation comprises one or both of a repair recommendation and a maintenance recommendation (see Bergstrom, column 11 lines 50-56).

Referring to claim 49, Bergstrom teaches an apparatus for analyzing performance data, comprising: a download module for receiving sets of performance data (see Bergstrom, column 5 lines 1-4); a storage device for storing the sets of performance data (see Bergstrom, column 5 lines 5-11); a controller for assigning a priority to each set of performance data (see Jarrett, column 7 lines 17-24); a plurality of data analysis tools for analyzing the sets of performance data, according to the assigned priorities and within a respective analysis capability limit of each one of the plurality data analysis tools (see Jarrett, column 7 lines 59-65); and a recommendation creator for creating a service recommendation in response to the plurality of data analysis tools (see Bergstrom, column 1 lines 50-56). Bergstrom does not teach determining the need for remedial action to one or more of the plurality of locomotives.

Jarrett teaches determining the need for remedial action to one or more of the plurality of locomotives (see Jarrett, column 6 lines 18-26).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bergstrom to include the teachings of Jarrett because

determining the need for remedial action of a locomotive would have allowed the skilled artisan to report product defects to maintenance personnel and track product repairs (see Jarrett, column 1 lines 7-12).

Referring to claim 50, Bergstrom teaches that the storage device comprises a tool queue for each one of the plurality of data analysis tools, and wherein each one of the plurality of data analysis tools selects a set of performance data from the tool queue (see Bergstrom, column 7 lines 35-51).

Referring to claim 51, Bergstrom teaches that the storage device comprises a system queue, and wherein each one of the plurality of data analysis tools selects a set of performance data from the system queue (see Bergstrom, column 7 lines 35-51).

Referring to claim 52, Bergstrom teaches an analysis scheduler for activating one or more of the plurality of data analysis tools in response to availability of a set of performance data in the storage device (see Bergstrom, column 4 lines 24-32).

Referring to claim 53, Bergstrom teaches a status table for indicating availability of sets of performance data in the storage device for analysis by one or more of the plurality of data analysis tools (see Bergstrom, column 4 lines 18-36).

Referring to claim 54, Bergstrom teaches that a tool execution table for storing analysis capability limit information for each of the plurality of data analysis tools (see Bergstrom, column 7 lines 59-65).

Referring to claim 55, Bergstrom teaches an analysis scheduler for activating one or more of the plurality of data analysis tools in response to the respective analysis capability limit in the tool execution table (see Bergstrom, column 7 lines 59-65).

3. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom et al. (U.S. Patent No. 6,115,653) (hereinafter Bergstrom) and Jarrett (U.S. Patent No. 6,345,257) in view of McCasland (U.S. Patent No. 5,856,931).

Referring to claim 26, Bergstrom and Jarrett teach all the features of the claimed invention except compiling the sets of performance data into a plurality of download cases; and wherein the step of analyzing further comprises analyzing one or more of the plurality of download cases by the plurality of data analysis tools, wherein one or more of the data analysis tools can simultaneously analyze more than one of the plurality of download cases.

McCasland teaches compiling the sets of performance data into a plurality of download cases; and wherein the step of analyzing further comprises analyzing one or more of the plurality of download cases by the plurality of data analysis tools, wherein one or more of the data analysis tools can simultaneously analyze more than one of the plurality of download cases (see McCasland, column 12 lines 43-67).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bergstrom and Jarrett to include the teachings of McCasland because analyzing multiple data sets would have allowed the skilled artisan to execute a quick and precise inspection (see McCasland, col. 5 lines 7-16).

4. Claims 30-32 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom et al. (U.S. Patent No. 6,115,653) (hereinafter Bergstrom) in view of Jarrett (U.S. Patent No. 6,345,257) in view of Bryan (U.S. Patent No. 5,956,664).

Referring to claim 30, Bergstrom and Jarrett teach all the features of the claimed invention except that the sets of performance data comprise operational parametric data associated with the locomotive and fault data indicating a possible fault condition of the locomotive.

Bryan teaches that the sets of performance data comprise operational parametric data associated with the locomotive and fault data indicating a possible fault condition of the locomotive (see Bryan, column 8 lines 16-23).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bergstrom and Jarrett to include the teachings of Bryan because indicating a locomotive fault would have allowed the skilled artisan to determine the need for a service request.

Referring to claim 31, Bergstrom and Jarrett teach all the features of the claimed invention except that the fault data indicates the occurrence of an out-of-specification condition on the locomotive.

Bryan teaches that the fault data indicates the occurrence of an out-of-specification condition on the locomotive (see Bryan, column 9 lines 44-54).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bergstrom and Jarrett to include the teachings of Bryan because indicating an out-of-specification condition would have allowed the skilled artisan to determine the presence of an anomaly (see Bryan, column 9 lines 50-54).

Referring to claim 32, Bergstrom and Jarrett teach all the features of the claimed invention except that the operational parametric data comprises parametric data collected over a time period and parametric data collected at spaced apart time intervals.

Bryan teaches that the operational parametric data comprises parametric data collected over a time period and parametric data collected at spaced apart time intervals (see Bryan, column 8 lines 29-31).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bergstrom and Jarrett to include the teachings of Bryan because collecting data at time intervals would have allowed the skilled artisan to gather the data when needed for analysis.

Referring to claim 34, Bergstrom and Jarrett teach all the features of the claimed invention except providing the service recommendation to a railroad operator of the locomotive for implementation on the locomotive.

Bryan teaches providing the service recommendation to a railroad operator of the locomotive for implementation on the locomotive (see Bryan, column 14 lines 18-24).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Bergstrom and Jarrett to include the teachings of Bryan because providing a user with service information would have allowed the skilled artisan to determine the status of the anomaly within a particular region (see Bryan, column 14 lines 18-24).

Allowable Subject Matter

5. Claims 27, 35, 39, 40 and 44 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(a) Vu et al. teach a train schedule repairer.

(b) Pierro teaches a method and system for identifying critical faults in machines.

(c) Hedlund et al. teach an apparatus and method for performance and fault data analysis.

(d) Jarrett teaches computer based interactive defect reporting system for the paperless reporting of problems in a vehicle forming part of a fleet.

(e) Kubala et al. teach a micro controlled classification yard.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Kate B Baran whose telephone number is (571) 272-2211. The examiner can normally be reached on Monday - Friday from 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


MARC S. HOFF

SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

06 July 2004